Guidelines for Collection and Submission of WNV Specimens

Who should be tested for WNV?

- Patients with severe flu-like illness, meningitis/encephalitis, or acute flaccid paralysis

Clinical	Hospitali-zation	Patient Insurance Covers Cost of Testing	Epi Criteria	Testing Recommendations
Asymptomatic patients	N/A	N/A	N/A	**Do not test**
Patients with suspect West Nile fever: • Fever • Headache • Arthralgias • Myalgias • Fatigue With or without: • Maculopapular rash • Lymphadenopathy	No	N/A	Appropriate exposure history[1]	**Testing is not necessary; if testing desired use private reference laboratory**
Patients with suspect WNV neurologic disease[2]: • Meningitis • Encephalitis • Acute flaccid paralysis • Meningitis	Yes or No	Yes	Appropriate exposure history[1]	**Recommend testing at private reference laboratory**
	Yes	No	Appropriate exposure history[1] AND Other likely etiologies already ruled out	**Recommend and schedule testing with UPHL**
	No	No		**Testing available at UPHL only by consultation with UDOH Epi**

[1] Appropriate exposure history includes:

- Mosquito bites
- Travel to endemic area
- Dusk through dawn exposure
- WNV Risk Levels 2-5

[2] Symptoms of neurologic disease include:
Meningitis (fever, stiff neck, severe headache)
Encephalitis (fever, severe headache, possible mental confusion, convulsions, coma)
Acute flaccid paralysis (severe muscle weakness)

Utah Department of Health
Office of Epidemiology
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LHD Response to Test Request at UPHL

If a physician calls in with a case that meets the criteria to be tested at the UPHL:

1. Fill out the morbidity card and viral meningitis/encephalitis form (found at www.health.utah.gov/wnv) and report to UDOH or appropriate LHD
2. Have physicians/lab fill out the appropriate test request form (found in the UPHL Client Services Manual or at www.health.utah.gov/wnv) and refer them to the manual for specimen collection and shipping specifications
3. Have physicians document the name of the consulting local health department personnel on the test request form
4. Mail specimen along with test request form to:
   Utah Public Health Laboratory
   Attn: Immunology
   46 North Medical Drive
   Salt Lake City, UT 84113
5. Upon notice of an IgM+ specimen from either a reference laboratory or the UPHL fill out the WNV case investigation (long) form and forward to UDOH Office of Epidemiology (short form will be used dependent on human case load)

Recommended Specimens for WNV Testing

	Reference Laboratory	**UPHL**
Availability	Upon request at: • Quest Diagnostics • LabCorp • ARUP Laboratories Tests available: ELISA, IFA, PCR, DFA	Consultation with LHD or UDOH Epidemiology required prior to submitting specimens Tests available: IgM ELISA; PCR (for immunocompromised patients only)
Patient Prep	See specific recommendations	Assessment of symptoms, vaccinations, and travel history
Specimen	• CSF • Serum • Tissue	• CSF • Serum • Tissue (only available upon consult with UDOH)
Processing	See specifications of reference lab	Serum: refrigerate (freeze if transport delayed) CSF: room temperature (refrigerate if transport delayed)
Collection Container	Serum: Red-topped tubes or serum separators, spin prior to transport CSF: collect as per established protocol of institution Tissue: see recommendations from specific reference lab	Serum: Red-topped tubes or serum separators, spin prior to transport CSF: collect as per established protocol of institution
Time Consideration	Transport as soon as possible	Transport as soon as possible

Label	• See recommendations of reference lab	• Patient's full name or unique identifier
Forms	• See recommendations of reference lab	• Immunology/Serology Test Request Form • Collection date • Date of symptom onset
Approximate Turnaround Time	• Varies according to lab	72 hours after receipt
Results	• Detected • Not detected • Ranges vary according to lab	• Detected • Not detected
Additional Information	Acute serum should be drawn 7-10 days after symptom onset. A negative acute specimen does not rule out presence of virus. A convalescent sample must be drawn >28 days after symptom onset	Acute serum should be drawn 7-10 days after symptom onset. A negative acute specimen does not rule out presence of virus. A convalescent sample must be drawn >28 days after symptom onset St. Louis encephalitis ELISA will be performed on positive IgM specimens to determine flavivirus specificity
Contact	Varies according to reference lab	Immunology Section Annete Atkinson 801-584-8454 Tom Sharpton 801-584-8235 Barb Jepson 801-584-8400

A case is laboratory confirmed if one of the following criteria are met

West Nile fever	• 4-fold or greater change in WNV specific serum antibody titer • Isolation of the West Nile virus from tissue, blood, CSF, or other body fluid • WNV-specific IgM antibodies demonstrated in serum and confirmed in the same or later specimen
West Nile meningitis/encephalitis	• Isolation of the West Nile virus from tissue, blood, CSF, other body fluid • IgM antibody to WNV in CSF • 4-fold or greater increase in antibody to WNV in paired serum or CSF samples

Processing of test results

UPHL	IgM- results • Serum: If acute specimen was collected within 8 days of symptom onset, recommend convalescent specimen to be collected 2-4 weeks after acute specimen • CSF: reported as not-a-case IgM+ results • Serum & CSF: re-tested at UPHL and sent to CDC for confirmatory testing (at beginning of season only)
Reference laboratory	IgM- results • Serum: If acute specimen was collected within 8 days of symptom onset, recommend convalescent specimen to be collected 2-4 weeks after acute specimen • CSF: reported as not-a-case IgM+ results • Serum & CSF: re-tested at reference lab and sent to UPHL for further testing (testing at UPHL will cease during season upon validation of reference laboratory results). At the beginning of the season, these results may be forwarded to the CDC for confirmatory testing. IgG- & IgM- results • Serum & CSF: reported as not-a-case IgG+* & IgM- results • Serum: If acute specimen was collected within 8 days of symptom onset, recommend convalescent specimen to be collected 2-4 weeks after acute specimen • CSF: reported as not-a-case

*

- The WNV IgM is long lasting: people who have a negative IgM do not have an acute infection due to WNV
- It is difficult to tell if they had a prior WNV exposure as some IgG tests cross-react with other flaviviruses (in other words, they may test positive if someone has had a Yellow Fever vaccine or prior dengue infection)
- If you have a high index of suspicion of WNV infection in these patients, consider retesting for IgM 2-4 weeks after onset.